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Referring now to the final rejection, claim 23 stands finally rejected on the first paragraph of 35 USC 112 as containing subject matter which was not described in the specification. It is believed that rejection of claim 23 is untenable since the subject matter in question was in the original claim 23 and the specification would be amended on page 11 on entry of the amendment, which entry is requested for the reason that it was necessary and was not earlier presented because the issue was not earlier joined.

Claims 19-25 stand finally rejected under 35 USC 103(a) as being obvious over the Glumac reference. The Examiner contends that the Glumac reference discloses nanophase thin films and multilayer coatings and although it does not specifically disclose particles less than 100 nanometers in size, the disclosure of nanophase structures and nanocrystalline materials indicates that the particles are within the claimed range. Alternatively, the Examiner has concluded that it would have been obvious to have formed the nanophase films and multilayer coating with particles of less than 100 nanometers in order to take advantage of the technologically attractive properties offered by nanoparticles.

It is true that the Glumac reference discloses nanostructured or n-materials, including nanophase powders, however, the Glumac reference does not render obvious the subject matter of claims 19-25 herein. The

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Glumac reference does not disclose any specific particle size of n-materials. A nanometer particle size can be a particle of a size ranging from a fraction of a nanometer to 1000 nanometers, leaving for the time being particles generally defined by nanometers, such as 2000 nanometers or 2 microns.

The subject matter claimed herein is unobvious over the Glumac reference since it defines the particle size in the thin film or multilayer thin film as being less than 100 nm. A particle of 100 nm and a particle of 1000 nm are nanoparticles, however, the size difference between them is a matter not of degree but of kind and there is nothing in the Glumac reference to conclude otherwise. It should be noted that claim 22, for instance, is directed to a multilayered thin film wherein the layers are integrated by graded interfaces rather than abrupt interfaces, which is, likewise, not disclosed or rendered obvious by the Glumac reference.

Since the remaining claims depend directly or indirectly on claim 19, allowance of claim 19 will render all remaining claims allowable.

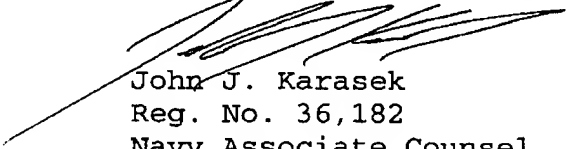
Attached hereto is a marked-up version of the changes made to the specification and the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

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Also attached hereto is a notice of Appeal with respect to claims  
19-25. Please charge our account # 50-0281 with the appropriate fee.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the specification:

Paragraph beginning at line 13 on p.11, is to be amended as follows:

Fig. 2 illustrates how the gradient can be finely controlled to change from one composition to another by using the solution precursors. The three component layer shown in Fig. 2 also illustrates how the three layers can be built up with good adherence between the layers due to the gradient transition between them. When coating A is alumina, it provides good adherence to the substrate. When coating B is zirconia, it provides thermal resistance properties. By applying a second layer A of alumina, it provides oxygen protection to the intermediate zirconia layer. Such a concept of graded coatings can be used in other applications as well and by using other materials. Furthermore, the multilayered materials can be selected from ceramics-ceramics, metal-ceramics, metal-metal, and mixtures thereof.

In the claims:

Please amend claim 23 as follows:

23. (Twice Amended) The multilayered coated material according to Claim 22, wherein the multilayered materials are selected from the group consisting of ceramics-ceramics; metal-ceramics; metal-metal; [organic-inorganic] and mixtures thereof.